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Cardinal coach lines limited



# FleetSmart PROFILES

## CARDINAL COACH LINES LIMITED

*Propane Fuel Addresses  
Both Environmental  
and Cost Concerns*

**Cardinal Coach Lines Limited of Calgary, Alberta, is saving over \$1.2 million per year by operating more than half of its school bus fleet on propane fuel. By continuing to monitor developments in the alternative fuels market, the company is ready to take advantage of new opportunities to reduce costs and help the environment.**



### About the company

Cardinal Coach Lines provides a school bus service, charter operations and other specialized services to many urban centres and rural areas throughout Alberta. The company also has operations in Toronto and Vancouver, and a separate branch provides a school bus service in Los Angeles, California.

Today, 80 per cent of Cardinal's revenues come from the operation of 800 school buses (the company fleet includes an additional 50 coaches and special-purpose buses). Approximately 60 per cent of the school buses are Class 3 and 4 units built on truck frames. The remainder are Class 1 and 2 mini-buses or vans. Cardinal owns all of the buses in the fleet and hires mostly part-time drivers, many of whom live on or near the routes they drive.

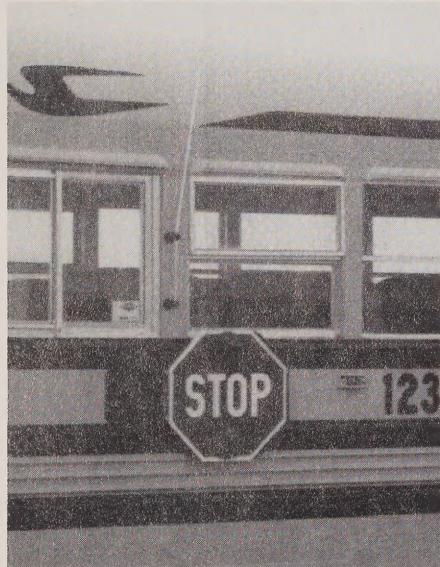
service

To the greatest extent possible, each of the school buses is operated by one driver during the course of the school year. In urban areas, 70 per cent of the buses operate out of company-controlled depots, with the remainder stationed at the drivers' residences. In rural areas, about half of all buses are parked at the drivers' residences.

## The evaluation program

In 1984, the company launched an evaluation program in Calgary that involved converting 130 buses to natural gas and a similar number to propane. When the test period ended five years later, the company's assessment determined that propane offered more operating advantages, including

- convenience of refuelling, even in rural areas — most communities have propane service stations, and the refuelling operation takes about the same amount of time as is required for gasoline or diesel fuel



## *Alternative fuel consid- erations*

In considering whether to convert its school bus fleet to an alternative fuel in the early 1980s, Cardinal's management took a number of factors into account.

According to company President Stan Weber, foremost among these was the safety of the bus riders and drivers. As well, the company had to ensure that the choice of fuel would not affect its ability to provide efficient and reliable service, which meant that the buses would have to be capable of starting and operating in extremely cold weather.

**The economics of the conversion were also a key consideration.** Fuel costs represent about 10 per cent of the company's total operating budget, and it was important to ensure that the conversions would pay for themselves in a reasonable amount of time through fuel cost savings.

**Cardinal was also concerned about vehicle emissions, particularly in the**

#### **Vancouver fleet.**

A high priority was therefore given to finding a fuel that would produce fewer harmful emissions.

Other important considerations included

- operating range (a fuel with a short operating range would cause considerable inconvenience in certain areas)
- the availability and convenience of refuelling
- the availability of conversion equipment for some buses



- dependability — with a reasonable amount of care, the propane-fuelled vehicles were relatively easy to start in cold weather
- less loss of engine power than with natural gas
- a greater operating range than natural gas

Cost was also an important factor. The company found that propane conversions were less expensive than natural gas conversions, and did not require the purchase of costly fuel-storage and refuelling equipment.

As a result of this evaluation program, Cardinal selected propane as its alternative fuel of choice and now operates more than 400 propane buses. With annual fuel-cost savings

# payback

of approximately \$3,000 per bus (compared to gasoline-fuelled buses), the conversion cost of about \$2,000 per bus is repaid in less than one year. Cardinal now boasts total fuel-cost savings of more than \$1.2 million per year with its propane buses.

Cardinal President Stan Weber reports that the fuel cost of operating a bus on propane is currently about half the cost of operating the same bus on gasoline. Although some additional maintenance is required on the propane vehicles (particularly on cylinder heads and valves), there is no noticeable difference in engine life compared to the gasoline vehicles.

## A promising future for alternative fuels

With the increasing pressures on school board budgets and growing demands for service, smart fleet operators are investigating the use of alternative fuels as a means of reducing their costs. In addition to making economic sense, the use of alternative fuels is good for the environment and sends a very clear and strong message to students, parents and the general public that steps can be taken to reduce the environmental impact of vehicles.



For more information on  
fleet energy-saving opportuni-  
ties, please write to

FleetSmart  
Natural Resources Canada  
580 Booth Street, 18th floor  
Ottawa, Ontario  
K1A 0E4

or fax your request to  
(613) 952-8169  
or e-mail  
[Fleet.Smart@es.nrcan.gc.ca](mailto:Fleet.Smart@es.nrcan.gc.ca)

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